

TEMPERATURE-CONTROLLED CHUCK WITH RECOVERY OF CIRCULATING  
TEMPERATURE CONTROL FLUID

Abstract of the Disclosure

5 A system and method for controlling temperature in a workpiece chuck are  
described. A fluid circulation system circulates a temperature control fluid, such as an  
engineered HFE fluid, through the workpiece chuck. A fluid recovery system coupled to  
the fluid circulation system recovers a portion of the temperature control fluid from the  
fluid circulation system by circulating a gas through the fluid circulation system  
including fluid tubes and fluid passages in the chuck. The gas, which can be air, carries  
10 a portion of residual or excess fluid through the fluid circulation system as it is  
circulated. The residual fluid is carried back to a reservoir such that it can continue to be  
used to control temperature of the chuck. Where gas and temperature control fluid  
vapors are displaced from the reservoir, they are routed through a suction line heat  
exchanger which condenses the vapor. The gas and condensed fluid are separated in a  
15 fluid separator. The separated fluid is returned to the reservoir, and the separated air can  
be vented to the atmosphere.

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